

CLAIMS

We claim:

1. A composition for topical administration comprising:

- (a) a non-amphoteric glutathione derivative and
- 5 (b) a topically acceptable vehicle.

2. The composition of claim 1, wherein the non-amphoteric glutathione derivative is selected from the group consisting of an N-acyl-glutathione, an N-acyl-glutathione amide, and an N-acyl-glutathione ester.

3. The composition of claim 1, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N-acetyl-glutathione; N-acetyl-glutathione monoamide; N-acetyl-glutathione diamide; N-acetyl-glutathione monomethyl ester; N-acetyl-glutathione dimethyl ester; N-acetyl-glutathione monoethyl ester; N-acetyl-glutathione diethyl ester; N-acetyl-glutathione monopropyl ester; N-acetyl-glutathione dipropyl ester; N-acetyl-glutathione monoisopropyl ester; and N-acetyl-glutathione diisopropyl ester.

15 4. The composition of claim 1, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N-propanoyl-glutathione; N-propanoyl-glutathione monoamide; N-propanoyl-glutathione diamide; N-propanoyl-glutathione monomethyl ester; N-propanoyl-glutathione dimethyl ester; N-propanoyl-glutathione monoethyl ester; N-propanoyl-glutathione diethyl ester; N-propanoyl-glutathione monopropyl ester; N-propanoyl-glutathione dipropyl ester; N-propanoyl-glutathione monoisopropyl ester; and N-propanoyl-glutathione diisopropyl ester.

20 5. The composition of claim 1, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N,S-diacetyl-glutathione; N,S-diacetyl-glutathione monoamide; N,S-diacetyl-glutathione diamide; N,S-diacetyl-glutathione monomethyl ester; N,S-diacetyl-glutathione dimethyl ester; N,S-diacetyl-glutathione monoethyl ester; N,S-diacetyl-glutathione diethyl ester; N,S-diacetyl-glutathione monopropyl ester; N,S-diacetyl-glutathione dipropyl ester; N,S-diacetyl-glutathione monoisopropyl ester; and N,S-diacetyl-glutathione diisopropyl ester.

25 6. The composition of claim 1, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N,S-dipropanoyl-glutathione; N,S-dipropanoyl-glutathione

monoamide; N,S-dipropanoyl-glutathione diamide; N,S-dipropanoyl-glutathione monomethyl ester; N,S-dipropanoyl-glutathione dimethyl ester; N,S-dipropanoyl-glutathione monoethyl ester; N,S-dipropanoyl-glutathione diethyl ester; N,S-dipropanoyl-glutathione monopropyl ester; N,S-dipropanoyl-glutathione dipropyl ester; N,S-dipropanoyl-glutathione monoisopropyl ester; N,S-dipropanoyl-glutathione diisopropyl ester; glutathione diamide; glutathione dimethyl ester; glutathione diethyl ester; glutathione dipropyl ester; glutathione diisopropyl ester; N-acetyl-S-propanoyl-glutathione; and N-propanoyl-S-acetyl-glutathione.

7. The composition of claim 1, wherein the composition further comprises one or more cosmetic, pharmaceutical or other topical agent.

8. The composition of claim 7, wherein the cosmetic, pharmaceutical or other topical agent is selected from the group consisting of agents that improve or eradicate age spots, keratoses and wrinkles; local analgesics and anesthetics; antiacne agents; antibacterials; antiyeast agents; antifungal agents; antiviral agents; antidandruff agents; antidermatitis agents; antihistamine agents; antipruritic agents; antiemetics; antimotionsickness agents; antiinflammatory agents; 15 antihyperkeratolytic agents; antiperspirants; antipsoriatic agents; antiseborrheic agents; hair conditioners and hair treatment agents; antiaging and antiwrinkle agents; sunblock and sunscreen agents; skin lightening agents; depigmenting agents; vitamins; corticosteroids; tanning agents; humectants; hormones; retinoids; gum disease or oral care agents; topical cardiovascular agents; corn, callus and wart removing agents; and dipilating agents.

9. The composition of claim 7, wherein the cosmetic, pharmaceutical or other topical agent is selected from the group consisting of aclovate, acyclovir, acetylsalicylic acid, adapalene, albuterol, aluminum acetate, aluminum chloride, aluminum hydroxide, aluminum chlorohydroxide, amantadine, aminacrine, aminobenzoic acid (PABA), aminocaproic acid, aminosalicylic acid, amitriptyline, anthralin, ascorbic acid, ascoryl palmitate, atropine, azelaic acid, bacitracin, 25 bemegride, beclomethasone dipropionate, benzophenone, benzoyl peroxide, betamethasone dipropionate, betamethasone valerate, brompheniramine, bupivacaine, butoconazole, calcipotriene, camphor, capsaicin, carbamide peroxide, chitosan, chlorhexidine, chloroxylenol, chlorpheniramine, ciclopirox, clemastine, clindamycin, clioquinol, clobetasol propionate, clotrimazole, coal tar, cromolyn, crotamiton, cycloserine, dehydroepiandrosterone, desoximetasone, dexamethasone, 30 diphenhydramine, doxypin, doxylamine, dyclonine, econazole, erythromycin, estradiol, ethinyl estradiol, fluocinonide, fluocinolone acetonide, 5-fluorouracil, griseofulvin, guaifenesin, haloprogin, hexylresorcinol, homosalate, hydrocortisone, hydrocortisone 21-acetate, hydrocortisone 17-valerate,

hydrocortisone 17-butyrate, hydrogen peroxide, hydroquinone, hydroquinone monoether, hydroxyzine, ibuprofen, ichthammol, imiquimod, indomethacin, ketoconazole, ketoprofen, kojic acid, lidocaine, meclizine, mecloxycline, menthol, mepivacaine, methyl nicotinate, methyl salicylate, metronidazole, miconazole, minocycline, minoxidil, monobenzone, mupirocin, naftifine,
5 naproxen, neomycin, nystatin, octyl methoxycinnamate, octyl salicylate, oxybenzone, oxiconazole, oxymetazoline, padimate O, permethrin, pheniramine, phenol, phenylephrine, phenylpropanolamine, piperonyl butoxide, podophyllin, podofilox, povidone iodine, pramoxine, prilocaine, procaine, promethazine propionate, propranolol, pseudoephedrine, pyrethrin, pyrilamine, resorcinol, retinal, 13-cis retinoic acid, retinoic acid, retinol, retinyl acetate, retinyl palmitate, salicylamide, salicylic acid, selenium sulfide, shale tar, sulconazole, sulfur, sulfadiazine, tazarotene, terbinafine, terconazole, tetracaine, tetracycline, tetrahydrozoline, thymol, tioconazole, tolnaftate, triamcinolone diacetate, triamcinolone acetonide, triamcinolone hexacetonide, triclosan, triprolidine, undecylenic acid, urea, vitamin E acetate, wood tar, zinc pyrithione, lactobionic acid, maltobionic acid, glycolic acid, mandelic acid, lactic acid, tropic acid, methyllactic acid, tartaric acid, citric acid, malic acid,
10 glucuronic acid, glucuronolactone, ribonic acid, ribonolactone, gluconic acid, gluconolactone, galactonic acid, galactonolactone, glucarolactone, galactarolactone, N-acetyl-cysteine, N-acetyl-proline, N-acetyl-prolinamide, N-acetyl-lysine, N-acetyl-glutamine, N-acetyl-ornithine and N-acetyl-glucosamine.

10. A composition for topical administration comprising:

20 (a) a non-amphoteric glutathione derivative represented by the formula (I):



wherein R¹ is independently selected from -OH, -NH₂, -NHNH₂, an alkoxy group, an aralkoxy group, and an aryloxy group and R² and R³ are each independently selected from a hydrogen atom or an acyl group, but if at least one R¹ is -OH, -NH₂, or -NHNH₂, then R² is an acyl group; and

25 (b) a topically acceptable vehicle. x.x.x

11. The composition of claim 10, wherein R¹ is independently selected from an alkoxy group having one to nine carbon atoms, an aralkoxy group having one to nine carbon atoms, and an aryloxy group having one to nine carbon atoms.

12. The composition of claim 10, wherein R² or R³ is independently an acyl group having
30 two to nine carbon atoms.

13. The composition of claim 10, wherein the composition further comprises one or more cosmetic, pharmaceutical or other topical agent.

14. The composition of claim 13, wherein the cosmetic, pharmaceutical or other topical agent is selected from the group consisting of agents that improve or eradicate age spots, keratoses and wrinkles; local analgesics and anesthetics; antiacne agents; antibacterials; antiyeast agents; antifungal agents; antiviral agents; antidandruff agents; antidermatitis agents; antihistamine agents; antipruritic agents; antiemetics; antimotionsickness agents; antiinflammatory agents; antihyperkeratolytic agents; antiperspirants; antipsoriatic agents; antiseborrheic agents; hair conditioners and hair treatment agents; antiaging and antiwrinkle agents; sunblock and sunscreen agents; skin lightening agents; depigmenting agents; vitamins; corticosteroids; tanning agents; humectants; hormones; retinoids; gum disease or oral care agents; topical cardiovascular agents; corn, callus and wart removing agents; and dipilating agents.

15. The composition of claim 13, wherein the cosmetic, pharmaceutical or other topical agent is selected from the group consisting of aclovate, acyclovir, acetylsalicylic acid, adapalene, albuterol, aluminum acetate, aluminum chloride, aluminum hydroxide, aluminum chlorohydroxide, amantadine, aminacrine, aminobenzoic acid (PABA), aminocaproic acid, aminosalicylic acid, amitriptyline, anthralin, ascorbic acid, ascoryl palimate, atropine, azelaic acid, bacitracin, bemegride, beclomethasone dipropionate, benzophenone, benzoyl peroxide, betamethasone dipropionate, betamethasone valerate, brompheniramine, bupivacaine, butoconazole, calcipotriene, camphor, capsaicin, carbamide peroxide, chitosan, chlorhexidine, chloroxylenol, chlorpheniramine, ciclopirox, clemastine, clindamycin, clioquinol, clobetasol propionate, clotrimazole, coal tar, cromolyn, crotamiton, cycloserine, dehydroepiandrosterone, desoximetasone, dexamethasone, diphenhydramine, doxypin, doxylamine, dyclonine, econazole, erythromycin, estradiol, ethinyl estradiol, fluocinonide, fluocinolone acetonide, 5-fluorouracil, griseofulvin, guaifenesin, haloprogin, hexylresorcinol, homosalate, hydrocortisone, hydrocortisone 21-acetate, hydrocortisone 17-valerate, hydrocortisone 17-butyrate, hydrogen peroxide, hydroquinone, hydroquinone monoether, hydroxyzine, ibuprofen, ichthammol, imiquimod, indomethacin, ketoconazole, ketoprofen, kojic acid, lidocaine, meclizine, mectocycline, menthol, mepivacaine, methyl nicotinate, methyl salicylate, metronidazole, miconazole, minocycline, minoxidil, monobenzone, mupirocin, naftifine, naproxen, neomycin, nystatin, octyl methoxycinnamate, octyl salicylate, oxybenzone, oxiconazole, oxymetazoline, padimate O, permethrin, pheniramine, phenol, phenylephrine, phenylpropanolamine, piperonyl butoxide, podophyllin, podofilox, povidone iodine, pramoxine, prilocaine, procaine,

promethazine propionate, propranolol, pseudoephedrine, pyrethrin, pyrilamine, resorcinol, retinal, 13-cis retinoic acid, retinoic acid, retinol, retinyl acetate, retinyl palmitate, salicylamide, salicylic acid, selenium sulfide, shale tar, sulconazole, sulfur, sulfadiazine, tazarotene, terbinafine, terconazole, tetracaine, tetracycline, tetrahydrozoline, thymol, tioconazole, tolnaftate, triamcinolone diacetate, triamcinolone acetonide, triamcinolone hexacetonide, tricosan, triprolidine, undecylenic acid, urea, vitamin E acetate, wood tar, zinc pyrithione, lactobionic acid, maltobionic acid, glycolic acid, mandelic acid, lactic acid, tropic acid, methyllactic acid, tartaric acid, citric acid, malic acid, glucuronic acid, glucuronolactone, ribonic acid, ribonolactone, gluconic acid, gluconolactone, galactonic acid, galactonolactone, glucarolactone, galactarolactone, N-acetyl-cysteine, N-acetyl-
10 proline, N-acetyl-prolinamide, N-acetyl-lysine, N-acetyl-glutamine, N-acetyl-ornithine and N-acetyl-glucosamine.

16. A method for preventing or treating a cosmetic condition or a dermatological disorder comprising topically administering to a skin area affected with a cosmetic condition or dermatological disorder a composition comprising a therapeutically effective amount of a non-amphoteric glutathione derivative and a topically acceptable vehicle.
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17. The method of claim 16, wherein the cosmetic condition or dermatological disorder is selected from signs and changes of skin, nails and hair associated with intrinsic and/or extrinsic aging; inflammation and disturbed keratinization of the skin; defective synthesis of dermal components; dryness or looseness of skin, nail and hair; xerosis; palmar and plantar hyperkeratosis; uneven and rough surface of skin, nail and hair; dandruff; lichen simplex chronicus; keratoses and hyperkeratoses; follicular hyperkeratoses; acne; pseudofolliculitis barbae; dermatoses; eczema; psoriasis; pruritus; warts; herpes; age spots; lentigines; melasmas; blotches; blemished skin; mottled skin; hyperpigmented or darker skin; abnormal or diminished synthesis of collagen, glycosaminoglycans, proteoglycans and elastin; stretch marks; skin lines; fine lines; wrinkles; thinning of skin, nail plate or hair; skin thickening due to elastosis of photoaging; loss or reduction of skin, nail and hair resiliency, elasticity and recoilability; lack of skin, nail and hair lubricants and luster; dull and older-looking skin, nail and hair; fragility and splitting of nail and hair; for skin lightening and wound healing; yellowing skin; reactive, irritating or telangiectatic skin.
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18. The method of claim 16, wherein the non-amphoteric glutathione derivative is selected from the group consisting of an N-acyl-glutathione, an N-acyl-glutathione amide, and an N-acyl-glutathione ester.
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19. The method of claim 16, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N-acetyl-glutathione; N-acetyl-glutathione monoamide; N-acetyl-glutathione diamide; N-acetyl-glutathione monomethyl ester; N-acetyl-glutathione dimethyl ester; N-acetyl-glutathione monoethyl ester; N-acetyl-glutathione diethyl ester; N-acetyl-glutathione 5 monopropyl ester; N-acetyl-glutathione dipropyl ester; N-acetyl-glutathione monoisopropyl ester; and N-acetyl-glutathione diisopropyl ester.

20. The method of claim 16, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N-propanoyl-glutathione; N-propanoyl-glutathione 10 monoamide; N-propanoyl-glutathione diamide; N-propanoyl-glutathione monomethyl ester; N-propanoyl-glutathione dimethyl ester; N-propanoyl-glutathione monoethyl ester; N-propanoyl-glutathione diethyl ester; N-propanoyl-glutathione monopropyl ester; N-propanoyl-glutathione dipropyl ester; N-propanoyl-glutathione monoisopropyl ester; and N-propanoyl-glutathione diisopropyl ester.

21. The method of claim 16, wherein the non-amphoteric glutathione derivative is 15 selected from the group consisting of N,S-diacetyl-glutathione; N,S-diacetyl-glutathione monoamide; N,S-diacetyl-glutathione diamide; N,S-diacetyl-glutathione monomethyl ester; N,S-diacetyl-glutathione dimethyl ester; N,S-diacetyl-glutathione monoethyl ester; N,S-diacetyl-glutathione diethyl ester; N,S-diacetyl-glutathione monopropyl ester; N,S-diacetyl-glutathione dipropyl ester; N,S-diacetyl-glutathione monoisopropyl ester; and N,S-diacetyl-glutathione 20 diisopropyl ester.

22. The method of claim 16, wherein the non-amphoteric glutathione derivative is selected from the group consisting of N,S-dipropanoyl-glutathione; N,S-dipropanoyl-glutathione monoamide; N,S-dipropanoyl-glutathione diamide; N,S-dipropanoyl-glutathione monomethyl ester; N,S-dipropanoyl-glutathione dimethyl ester; N,S-dipropanoyl-glutathione monoethyl ester; N,S-dipropanoyl-glutathione diethyl ester; N,S-dipropanoyl-glutathione monopropyl ester; N,S-dipropanoyl-glutathione dipropyl ester; N,S-dipropanoyl-glutathione monoisopropyl ester; N,S-dipropanoyl-glutathione diisopropyl ester; glutathione diamide; glutathione dimethyl ester; glutathione diethyl ester; glutathione dipropyl ester; glutathione diisopropyl ester; N-acetyl-S-25 propanoyl-glutathione; and N-propanoyl-S-acetyl-glutathione.

30 23. The method of claim 16, wherein the composition further comprises one or more cosmetic, pharmaceutical or other topical agent.

24. The method of claim 23, wherein the cosmetic, pharmaceutical or other topical agent is selected from the group consisting of agents that improve or eradicate age spots, keratoses and wrinkles; local analgesics and anesthetics; antiacne agents; antibacterials; antiyeast agents; antifungal agents; antiviral agents; antidandruff agents; antidermatitis agents; antihistamine agents; 5 antipruritic agents; antiemetics; antimotionsickness agents; antiinflammatory agents; antihyperkeratolytic agents; antiperspirants; antipsoriatic agents; antiseborrheic agents; hair conditioners and hair treatment agents; antiaging and antiwrinkle agents; sunblock and sunscreen agents; skin lightening agents; depigmenting agents; vitamins; corticosteroids; tanning agents; humectants; hormones; retinoids; gum disease or oral care agents; topical cardiovascular agents; 10 corn, callus and wart removing agents; and dipilating agents.

25. The method of claim 23, wherein the cosmetic, pharmaceutical or other topical agent is selected from the group consisting of aclovate, acyclovir, acetylsalicylic acid, adapalene, albuterol, aluminum acetate, aluminum chloride, aluminum hydroxide, aluminum chlorohydroxide, amantadine, aminacrine, aminobenzoic acid (PABA), aminocaproic acid, aminosalicylic acid, 15 amitriptyline, anthralin, ascorbic acid, ascoryl palimate, atropine, azelaic acid, bacitracin, bemegride, beclomethasone dipropionate, benzophenone, benzoyl peroxide, betamethasone dipropionate, betamethasone valerate, brompheniramine, bupivacaine, butoconazole, calcipotriene, camphor, capsaicin, carbamide peroxide, chitosan, chlorhexidine, chloroxylenol, chlorpheniramine, ciclopirox, clemastine, clindamycin, clioquinol, clobetasol propionate, clotrimazole, coal tar, 20 cromolyn, crotamiton, cycloserine, dehydroepiandrosterone, desoximetasone, dexamethasone, diphenhydramine, doxypin, doxylamine, dyclonine, econazole, erythromycin, estradiol, ethinyl estradiol, fluocinonide, fluocinolone acetonide, 5-fluorouracil, griseofulvin, guaifenesin, haloprogin, hexylresorcinol, homosalate, hydrocortisone, hydrocortisone 21-acetate, hydrocortisone 17-valerate, hydrocortisone 17-butyrate, hydrogen peroxide, hydroquinone, hydroquinone monoether, 25 hydroxyzine, ibuprofen, ichthammol, imiquimod, indomethacin, ketoconazole, ketoprofen, kojic acid, lidocaine, meclizine, meclocycline, menthol, mepivacaine, methyl nicotinate, methyl salicylate, metronidazole, miconazole, minocycline, minoxidil, monobenzene, mupirocin, naftifine, naproxen, neomycin, nystatin, octyl methoxycinnamate, octyl salicylate, oxybenzone, oxiconazole, oxymetazoline, padimate O, permethrin, pheniramine, phenol, phenylephrine, phenylpropanolamine, 30 piperonyl butoxide, podophyllin, podofilox, povidone iodine, pramoxine, prilocaine, procaine, promethazine propionate, propranolol, pseudoephedrine, pyrethrin, pyrilamine, resorcinol, retinal, 13-cis retinoic acid, retinoic acid, retinol, retinyl acetate, retinyl palmitate, salicylamide, salicylic

acid, selenium sulfide, shale tar, sulconazole, sulfur, sulfadiazine, tazarotene, terbinafine, terconazole, tetracaine, tetracycline, tetrahydrozoline, thymol, tioconazole, tolnaftate, triamcinolone diacetate, triamcinolone acetonide, triamcinolone hexacetonide, triclosan, triprolidine, undecylenic acid, urea, vitamin E acetate, wood tar, zinc pyrithione, lactobionic acid, maltobionic acid, glycolic acid, mandelic acid, lactic acid, tropic acid, methyllactic acid, tartaric acid, citric acid, malic acid, glucuronic acid, glucuronolactone, ribonic acid, ribonolactone, gluconic acid, gluconolactone, galactonic acid, galactonolactone, glucarolactone, galactarolactone, N-acetyl-cysteine, N-acetyl-proline, N-acetyl-prolinamide, N-acetyl-lysine, N-acetyl-glutamine, N-acetyl-ornithine and N-acetyl-glucosamine.

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